Small Business Innovation Research/Small Business Tech Transfer

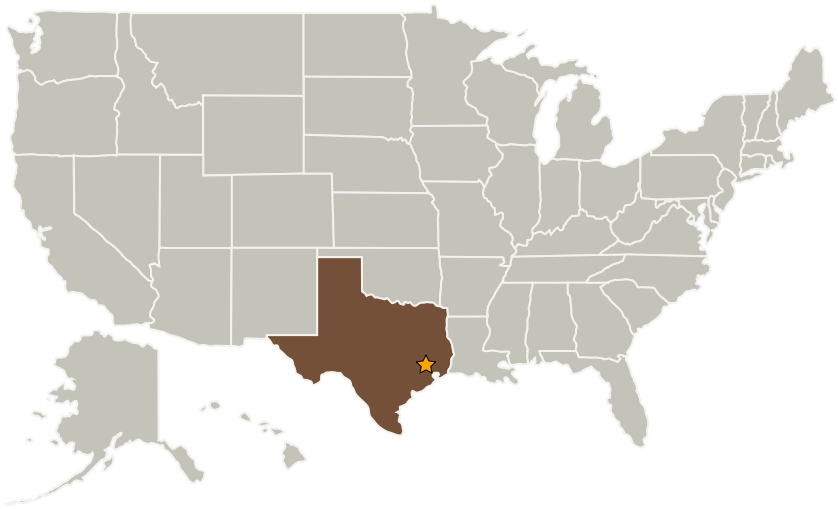
Single Electron Transistor Platform for Microgravity Proteomics, Phase I

Completed Technology Project (2005 - 2005)

Project Introduction

Proteomic studies in microgravity are crucial to understanding the health effects of spaceflight on astronauts. Unfortunately, existing tools for measuring protein, antibody, and enzyme expression are limited to earth-borne laboratories due to their complexity and size. This proposal offers a novel technology that provides a palm-top platform suitable for real-time experiments on the Space Shuttle or International Space Station. The technology uses nanoelectronic transistors coupled to antibody bioprobes to provide a label-free "direct detection" system that is rapid and easy to use with minimal skill. The system is completely self-contained, including all reagents and waste products, and operated from a PDA-style handheld computer. Phase I will demonstrate the detection concept and Phase II will deliver prototype units for testing.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Quantum Logic Devices	Supporting Organization	Industry	Georgetown, Texas

Single Electron Transistor Platform for Microgravity Proteomics, Phase I

Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Single Electron Transistor Platform for Microgravity Proteomics, Phase I

Completed Technology Project (2005 - 2005)

Primary U.S. Work Locations
Texas

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Louis Brousseau

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.2 Extravehicular Activity Systems
    - TX06.2.3 Informatics and Decision Support Systems